BARDAN GHIMIRE

Post-Doctoral Fellow
Earth Sciences Division
Lawrence Berkeley National Laboratory
1 Cyclotron Road, Berkeley 94720, USA
bghimire@lbl.gov

EDUCATION

Ph.D. (October 2012)
Graduate School of Geography
Clark University: Worcester, Massachusetts, U.S.A.
Dissertation title: *Biogeochemical and biophysical consequences of disturbances in forests of the western United States*
Committee members: Christopher A. Williams (chair), John Rogan, Dominik Kulakowski and G. James Collatz (external, NASA)

M.S. *magna cum laude* (September 2005)
Department of Environmental Science
Kathmandu University: Dhulikhel, Kavre, Nepal
Thesis title: *Run off and soil erosion processes in a mid-hill watershed of central Nepal*

B.Tech. (November 2003)
Department of Civil Engineering
Indian Institute of Technology: Roorkee, Uttarakhand, India
Project title: *Design of the hydrologic and hydraulic aspects of Jamrani dam, Nainital, India*

PROFESSIONAL EXPERIENCE

Post-Doctoral Fellow, Earth Sciences, Lawrence Berkeley National Laboratory (02/2013–present)
Climate and land surface modeling for the Arctic NGEE project with William Riley and Charles Koven

Post-Doctoral Researcher, Graduate School of Geography, Clark University (09/2012–02/2013)
Albedo trends related to land cover change and disturbance: A multi-sensor approach, funded by NASA award to Christopher A. Williams
Impacts of disturbance history and climate on carbon fluxes from North American forests, funded by NASA award to Christopher A. Williams
Understanding parameter variability and trends in a recently clear-cut temperate forest ecosystem using model-data fusion

Research Assistant, Graduate School of Geography, Clark University (01/2012–08/2012)
Albedo trends related to land cover change and disturbance: A multi-sensor approach, funded by NASA award to Christopher A. Williams

Research Assistant, Graduate School of Geography, Clark University (10/2010–08/2012)
Impacts of disturbance history and climate on carbon fluxes from North American forests, funded by NASA award to Christopher A. Williams

Scientific Computer Programmer, IDRISI Project, Clark Labs, Clark University (09/2007–11/2010)
Design, write, and test computer programs for the IDRISI GIS software

RESEARCH INTERESTS

Global Environmental Change; Climate Modeling; Ecosystem Ecology; Ecohydrology; Disturbance Ecology; Ecological Modeling; Carbon, Water and Energy Cycling in Forest and Agricultural Ecosystems; Model-data Assimilation and Fusion; Remote Sensing; Spatial Analysis; Applied and Theoretical Geographic Information Science.

GRANTS

Early Career Scientist Travel Grant, NSF RCN Forecast Conference (2012)

NASA GSFC, Biospheric Sciences Graduate Student Support (2010, 3 month duration) $5,814
"*Biogeochemical and Biophysical Consequences of Disturbances in Forests of the Western United States*"

HONORS AND AWARDS

GIS, Remote Sensing and Cartography Specialty Paper Competition (Runner-up), AAG, 2008
Mahendra Vidya Bhushan Award for Outstanding Student, Kathmandu University, 2005
Indian Government Fellowship based on All-Nepal Entrance Examination, Indian Institute of Technology Roorkee, 1999-2003

PEER REVIEWED PUBLICATIONS

Ghimire, B., W. J. Riley, C. D. Koven, A. Rogers and J. Kattge. in prep. Global leaf nitrogen allocation patterns: A synthesis from the global plant traits (TRY) database.

Ghimire, B. and C. A. Williams. in prep. Detecting and quantifying parameter equifinality and non-uniqueness in ecosystem models using model-data fusion.

Ghimire, B., C. A. Williams, J. G. Masek, F. Gao, Z. Wang, C. B. Schaaf and T. He. in review. Global albedo change and radiative cooling from anthropogenic land-cover change, 1700 to 2005 based on MODIS, land-use harmonization and radiative kernels.

Gao, F., T. He, Z. Wang, **B. Ghimire**, Y. Shuai, J. G. Masek, C. B. Schaaf and C. A. Williams. in review. Generating multi-scale albedo look-up maps using MODIS BRDF/albedo products and Landsat imagery.

Ghimire, B., C. A. Williams, G. J. Collatz, J. G. Masek, M. Vanderhoof, D. Kulakowski and J. Rogan. in review. Large carbon release from bark beetle outbreaks across western United States imposes climate feedback.

Williams, C. A., M. Vanderhoof, M. Khomik and **B. Ghimire**. 2013. Post-clearcut dynamics of carbon, water and energy exchanges in a mid-latitude temperate, deciduous broadleaf forest environment. Global Change Biology doi: 10.1111/gcb.12388.

Vanderhoof, M., C. A. Williams, **B. Ghimire** and J. Rogan. 2013. Impact of mountain pine beetle outbreaks on forest albedo and radiative forcing, as derived from MODIS, Rocky Mountains, USA. Journal of Geophysical Research – Biogeosciences 118: doi:10.1002/jgrg.20120.

Vanderhoof, M., C. A. Williams, M. Pasay and **B. Ghimire**. 2012. Controls on the rate of CO_2 emission from woody debris in clearcut and coniferous forest environments of central Massachusetts. Biogeochemistry, online 13 November 2012, DOI: 10.1007/s10533-012-9810-4.

Ghimire, B., C. A. Williams, G. J. Collatz and M. Vanderhoof. 2012. Fire-induced carbon emissions and regrowth uptake in western U.S. forests: Documenting variation across forest types, fire severity, and climate regions. Journal of Geophysical Research – Biogeosciences 117: G03036, doi:10.1029/2011JG001935.

Neeti, N., J. Rogan, Z. Christman, J. R. Eastman, M. Millones, L. Schneider, E. Nickl, B. Schmook, B. L. Turner II and **B. Ghimire**. 2012. Mapping seasonal trends in vegetation using AVHRR-NDVI time series in the Yucatán Peninsula, Mexico. Remote Sensing Letters 3 (5): 433-442.

Panday, P. K. and **B. Ghimire**. 2012. Time-series analysis of NDVI from AVHRR data over the Hindu Kush–Himalayan region for the period 1982–2006. International Journal of Remote Sensing 33 (21): 6710-6721.

Rodriguez-Galiano, V. F., **B. Ghimire**, J. Rogan, M. Chica-Olmo and J. P. Rigol-Sanchez. 2012. An assessment of the effectiveness of a random forest classifier for land-cover classification. ISPRS Journal of Photogrammetry and Remote Sensing 67: 93-104.

Ghimire, B., J. Rogan, V. F. Rodriguez-Galiano, P. Panday and N. Neeti. 2012. An evaluation of bagging, boosting, and random forests for land-cover classification in Cape Cod, Massachusetts, USA. GIScience & Remote Sensing 49 (5): 623-643.

Rodriguez-Galiano, V. F., **B. Ghimire**, E. Pardo-Iguzquiza, M. Chica-Olmo and R. G. Congalton. 2012. Incorporating the downscaled Landsat TM thermal band in land-cover classification using random forest. Photogrammetric Engineering and Remote Sensing 78 (2): 129-138.

Panday, P. K., H. Bulley, U. Haritashya and **B. Ghimire**. 2011. Supraglacial Lake Classification in the Everest Region of Nepal Himalaya. In Geospatial Techniques for Managing Environmental Resources, eds. J. K. Thakur, S. K. Singh, A. Ramanathan, M. B. K. Prasad & W. Gossel, 86-99. Dordrecht: Springer Publications.

Panday, P. K., K. E. Frey and **B. Ghimire**. 2011. Detection of the timing and duration of snowmelt in the Hindu Kush-Himalaya using QuikSCAT, 2000–2008. Environmental Research Letters 6 (2): 1-13.

Ghimire, B., J. Rogan and J. Miller. 2010. Contextual land-cover classification: Incorporating spatial dependence in land-cover classification models using random forests and the Getis statistic. Remote Sensing Letters 1 (1): 45-54.

Eastman, J. R., F. Sangermano, **B. Ghimire**, H. Zhu, H. Chen, N. Neeti, Y. Cai, E. A. Machado and S. C. Crema. 2009. Seasonal trend analysis of image time series. International Journal of Remote Sensing 30 (10): 2721-2726.

PUBLICATIONS, OTHER

Rodríguez-Galiano, V. F., F. Abarca-Hernández, **B. Ghimire**, M. Chica-Olmo, P. Atkinson and C. Jeganathan. 2011. Incorporating spatial variability measures in land-cover classification using random forest. Procedia Environmental Sciences 3: 44-49.

Ghimire, B. 2005. Kanchan^{TM} Arsenic Filter: Can Iron and Arsenic Particles Migrate through the Sand Layer? Cambridge: Massachusetts Institute of Technology.

Ghimire, B. and P. Lavaju. 2004. Impacts of Khopasi Hydropower Project, Panauti on the Ecological Integrity of the Roshi River System. Kathmandu: Ministry of Population and Environment.

PROFESSIONAL AFFILIATIONS

American Geophysical Union
Association of American Geographers
International Society for Photogrammetry and Remote Sensing
FLUXNET Young Scientist Network

EDITORIAL/REVIEW SERVICE

Publication Reviewer (Number since 2011)
Biogeosciences (1)
Remote Sensing of Environment (1)
International Journal of Remote Sensing (2)
Remote Sensing Letters (2)
Canadian Journal of Remote Sensing (1)
GIScience and Remote Sensing (1)

PROPOSAL REVIEWER

NOAA

UNIVERSITY/DEPARTMENTAL SERVICE

Faculty Search Committee, GISci Professorship, 2011–2012
Faculty Reappointment Committee, Dr. Christopher A. Williams, Fall 2010

TECHNICAL SKILLS

GIS and Remote Sensing: ArcGIS, IDRISI
Statistics and Data Analysis: R, Matlab, Origin, SPSS, Minitab, Excel, Access
Programming: Delphi (Pascal), C++, FORTRAN, Python, IDL